



Missouri

Department of Natural Resources

Table Rock Lake

Phosphorus

Advisory Committee

Report



Committee formed to address water quality concerns in Table Rock Lake

About 115 people attended an August 1998 meeting hosted by the Missouri Department of Natural Resources (DNR) on the water quality in Table Rock Lake. The half-day meeting in Branson drew city, county and state officials, wastewater treatment operators and citizens to listen and to discuss water quality trends on the lake. The primary focus was on the impact of nutrients, in particular phosphorus, that are entering the James River and Table Rock Lake.

The meeting was opened by DNR Director Steve Mahfood. "We are committed to maintaining water quality in Table Rock Lake," he said. "I want to thank you for your strong support of this department and ask you to continue to work with me to preserve water quality in Table Rock Lake for the future."

As a result of this meeting and concerns expressed by southwest Missourians, DNR formed an advisory committee to discuss phosphorous limitations on wastewater treatment facilities that discharge into the Table Rock Lake watershed. Committee members were recruited from private sewer companies, cities, counties, the tourism industry, environmental organizations and the general public.

The committee met seven times from Oct. 20 through Dec. 21, 1998. Two sessions

included tours of the Springfield Southwest Wastewater Treatment Facility and the city of Branson's Cooper Creek wastewater treatment facility. Several of the members also attended the Clean Water Cruise, a water quality seminar, held on Table Rock Lake aboard the Showboat Branson Belle in November.

Members of the committee requested and received information regarding the current status of lake water quality, the rulemaking process, current regulations regarding phosphorus discharges into neighboring Lake Taneycomo and compliance with current permit effluent limits. Committee discussions also included geographic boundaries of the watershed, number and size of wastewater treatment facilities, phosphorus effluent limits in other states and costs associated with phosphorus removal.

Representatives from the U.S. Army Corps of Engineers, the University of Missouri's School of Natural Resources and the Missouri departments of Natural Resources and Conservation addressed the committee on various issues related to the lake's water quality. In addition, the committee discussed the economics of phosphorus removal and available grants and State Revolving Fund loans for facility upgrades.

The economic benefits of clean water

People immediately see the need to protect the water quality of Table Rock Lake for health and environmental reasons. But, it's also important to protect this natural resource for its beauty, what it adds to the quality of life. We must

continue to protect the water quality of Table Rock Lake in order to provide a place for families and visitors to recreate.

Water quality impacts Missouri in an environmental and economic way. In 1998, about 5.8 million people visited the Branson area, adding an estimated \$1.2 billion to the area economy. Some of the area's most significant attractions are its lakes and streams. More than 1.5 million people visited Table Rock and Roaring River state parks last year.

Water quality trends in Table Rock Lake

Table Rock Lake has historically had some of the clearest water in Missouri. We want to keep it that way. Today, the residents in that area express general concern over water quality in the Table Rock basin. In fact, 80 percent of respondents to a phone survey done by the James River Basin Partnership in 1997 said the lake and the river were more polluted than they were 10 years ago. Algae and nutrients were their biggest concern, according to responses to a Lakes of Missouri Volunteer Program questionnaire.

University of Missouri-Columbia Professor Jack Jones has been studying the water quality of Table Rock Lake since 1978. His present hypothesis is that there has been an increase in nutrient loading from recent agricultural and human development within the basin that has resulted in increased algae and reduced water clarity. "Changes of this type are readily apparent to the general public, because lake transparency is universally interpreted as a direct mea-

sure of water quality," according to Jones. "Lake water with reduced water clarity has less aesthetic appeal and diminished utility for most human uses."

Jones' alternative hypothesis is that observed changes in Table Rock Lake are the result of a periodic cycle driven by climate and hydrology, and that, with time, water quality will return to a condition similar to measurements by the university in the late 1970s and early 1980s. Jones has a pending proposal with DNR to sample areas of Table Rock Lake influenced by runoff from increasing human and agricultural development. He has also proposed to continue the research of hydrologic and climatic influences on Table Rock Lake to investigate his second hypothesis.

The committee's recommendations to help protect Table Rock Lake

The committee recently proposed the following recommendations for the department and the Missouri Clean Water Commission to consider in rulemaking:

1. Discharges with a design flow of 1 million gallons per day or greater shall not exceed 0.5 milligrams per liter (mg/l) of phosphorus as a monthly average - within a period not to exceed four years from the effective date of the rule.
2. Discharges with a design flow of 100,000 gallons a day but less than 1 million shall not exceed 1.0 mg/l of



Table Rock Lake Basin

USGS Hydrologic Unit Numbers

11010002

11010001



phosphorus as a monthly average within a period not to exceed four years from the effective date of the rule, and within eight years of the effective date of the rule not to exceed 0.5 mg/l.

3. Discharges of all other existing wastewater treatment facilities within Table Rock Lake Watershed Basin shall not exceed 0.5 mg/l of phosphorous as a monthly average within eight years from the effective date of the rule.
4. All newly permitted treatment facilities within the Table Rock Lake Watershed Basin constructed after the effective date of this rule shall include phosphorous treatment and discharges not to exceed 0.5 mg/l of phosphorous as a monthly average.
5. Because the Constitution of the State of Missouri as amended may require the General Assembly to appropriate funding for any new service or activity mandated by the state, we urge and recommend the (Clean Water) Commission to set up a program of grant funding for phosphorous removal as stated heretofore in the James River Watershed Basin.
6. And furthermore after considerable study and discussion, the Table Rock Lake Workgroup recommends
 - baseline and continuing monitoring be established to evaluate the effectiveness of the proposed rule;
 - Missouri work with Arkansas to implement similar requirements;

- the formation of a task force to develop similar nonpoint standards for phosphorous;
- similar regulations for other water bodies impacted by point or nonpoint sources of phosphorous.

For the purposes of recommendation 6, Table Rock Lake watershed basin is defined as the area mapped on page 3 and 4.

For more information

The state's water quality rule-making authority, the Missouri Clean Water Commission, has since enacted a rule limiting phosphorus discharged from point sources in the Table Rock Lake Basin. The phosphorus rule will become effective Nov. 30, 1999. The commission voted to exempt existing wastewater treatment facilities with design flows of less than 22,500 gallons per day from the requirements. However, all new facilities, regardless of size, must comply with the new phosphorus limits.

For more information, contact DNR's Southwest Regional Office in Springfield at (417) 891-4300 or our Water Pollution Control Program at 1-800-361-4827 or (573) 751-1300.

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